

SLIDING BOARD, IN PARTICULAR SKI, AND METHOD FOR THE
PRODUCTION THEREOF

The invention relates to a sliding board, in particular a ski, with a running surface, an upper shell, a core, steel edges, and with at least one interface element, connected to the sliding board body by means of anchoring elements, for arranging at least one binding element on the upper side of the sliding board.

The invention also relates to a method for the production of a sliding board, in particular a ski, consisting of a running surface, steel edges, a prefabricated core, an upper shell, optional additional intermediate plies, and also with at least one interface element for arranging at least one binding element on the upper side of the sliding board, the sliding board being pressed together in a mold under pressure and heat.

A sliding board with a profiled rail system which consists of at least one rail extending in the longitudinal direction of the sliding board, which is connected to the sliding board body by a dowel connection or dowel anchoring via at least one formed-on dowel or dowel portion, is known from EP-A-1 161 972. A number of pegs designed as expansion dowels, which are slotted and have a bore which narrows toward the free end of the peg concerned, are formed on the profiled rails following one another in the longitudinal direction of the rail. The bores are also open to the upper

side of the profiled rail. After the rail has been attached to the ski body and also after the pegs have been inserted into bores provided correspondingly on the ski body, pins are pressed or driven into the narrowing part of the bores, expanding the pegs. This type of fastening replaces the otherwise usual screw fastening.

The object of the invention is to provide a sliding board in which subsequent fastening of interface elements, in particular profiled rails, to the finished sliding board is no longer necessary.

According to the invention, the object set is achieved by virtue of the fact that the anchoring elements have already been inserted into receiving holes of the core during sliding board production and integrated here by material which cured during pressing together of the ski.

In a variant of the method according to the invention, receiving holes are made in the core and openings are made in the upper shell and also the optional additional plies provided above the core, a curing material is introduced into the receiving holes of the core, the interface element is positioned in the holes and the receiving holes by means of anchoring elements, the sliding board is ready constructed and pressed together in a mold, so that during the pressing operation the material introduced into the holes cures and integrates the anchoring elements in the core.

In another variant of the method according to the invention, two receiving holes are made in the core and openings are made in the upper shell and also the optional additional plies provided above the core, a prepreg layer being positioned on the core, at least in the region of the receiving holes, the interface element is positioned in the holes and the receiving holes by means of anchoring elements, and the sliding board is ready constructed and pressed together in a mold, so that during the pressing operation the resin of the prepreg layer flows into the receiving holes, cures and integrates the anchoring elements in the core.

In the invention, the interface element(s) is (are) accordingly already firmly integrated during production of the sliding board, and subsequent fastening is no longer necessary. The production of the sliding board is possible in a simple way, and only the binding - ski binding or snowboard binding - remains to be arranged on the finished sliding board.

In a preferred embodiment of the invention, the cured material is at the same time also a material which forms a connection to the core, to the upper web and to the anchoring elements. Such a material is an adhesive, a resin or the like, for example.

In another especially advantageous variant embodiment, the cured, connecting material originates from a prepreg layer introduced above the core. In this embodiment, a

separate adhesive or the like does not have to be introduced into the receiving holes of the core during production of the sliding board.

According to another embodiment of the invention, the cured material retaining the anchoring elements in the ski can also be one which retains the anchoring elements merely by a positive connection.

In all the variant embodiments, the integration of the anchoring elements in the ski must ensure that the binding arranged on the interface elements can be loaded accordingly. It is therefore advantageous to enlarge the connection or contact surface of the cured material with the upper web, to expand its area slightly, which can be effected by virtue of the fact that the holes made in the core are widened accordingly in their edge region.

All kinds of core which can be provided with the receiving holes, therefore prefabricated foamed cores, wood cores, cores made of metal and the like, are suitable for producing sliding boards according to the invention.

An upper shell which is already premolded can also be used in the production of the sliding board.

Further features, advantages and details of the invention are described in greater detail with reference to the drawing, which shows illustrative embodiments diagrammatically and in which fig. 1 shows a cross section through an embodiment of a ski

according to the invention, and

fig. 2 shows a partial cross section through another embodiment of a ski.

Fig. 1 shows a cross section through an embodiment of a ski 1 which comprises a core 2, an upper shell 3 forming or enclosing the upper side of the ski and the two longitudinal sides of the ski 1, a running surface 4 and edges 5 made of steel. A ply reinforcing the ski structure, a lower web 6, is provided between the running surface 4 and the core 2. The upper shell 3 can be of single-ply or multi-ply design, and at least one further intermediate ply, for example an upper web, can be introduced between the upper shell 3 and the core 2.

For the arrangement, guidance, slidable displacement and the like of a ski binding or ski binding part - a front jaw or a heel jaw - guide elements 7 with a rail-like profile are retained on the upper side of the ski 1. The guide elements 7 have been integrated into the ski structure during production of the ski 1, as is described below.

Each rail-like guide element 7 comprises in its region facing its adjacent ski side surface a guide strip 7a extending in the longitudinal direction of the ski, so that, for example, a base plate or support plate of a ski binding or ski binding part can be pushed onto the pair of guide elements 7. Each guide element 7 is provided with a number of receiving bores 7b for the insertion of anchoring elements 8.

The anchoring elements 8 consist in particular of a cylindrical shaft 8a and a likewise cylindrical head 8b of greater diameter. The receiving bore 7b in each guide element 7 is provided with an inwardly offset region 7c on which the head 8b of the anchoring element 8 is supported when the latter has been inserted. In the embodiment illustrated, that region anchored in the ski 1 of the shaft 8a of each anchoring element 8 is provided with a peripheral groove 9. Instead of one groove, a number of grooves, indentations or the like can be provided on the shaft 8a of the anchoring element 8.

In those locations where the rail-like guide elements 7 are positioned on the ski by means of the anchoring elements 8, receiving openings 10, 10' - holes or bores - have been made in the core 2, the diameter of which is greater than that of the shaft 8a of the anchoring elements 8. The core 2 is preferably a prefabricated foamed core, so that the receiving holes 10, 10' concerned can be made in a simple way. The holes 10 are in particular cylindrical bores, the holes 10', which are a possible variant, are likewise cylindrical but are widened peripherally in their upper edge region. Corresponding openings or holes 3a for passing the anchoring elements 8 through have also been made in the region of the upper shell 3 and the optionally present intermediate plies.

The ski 1 is manufactured as follows from the individual components, the prefabricated core 2 provided with the receiving holes 10 and/or 10', the upper shell 3, the optionally provided additional intermediate plies, the running surface 4, the steel edges 5 and the guide elements 7.

The anchoring elements 8 positioned on the guide elements 7 are passed through the holes 3a in the upper shell 3 and through corresponding holes of any further plies. In this connection, the upper shell 3 can be used either already premolded into its intended shape or unmolded. A connecting material 11, for example an adhesive, a synthetic resin or the like is introduced into the holes 10, 10' present in the core 2. The anchoring elements 8 are then inserted into the receiving holes 10 thus prepared. The ski, completed with all the components, is pressed together in an appropriate mold while heat is supplied. In the process, the connecting material 11 located in the receiving holes 10, 10' cures and forms a firm connection of the anchoring elements 8 to the core 2. At the same time, the material 11 also penetrates the grooves, indentations 9 or the like of the shaft 8a of the anchoring elements 8. The material 11 is preferably also to form a connection to the upper web 3, which is especially readily possible in the case of receiving holes 10' with a widened upper region.

Instead of a connecting curing material 11, it is also possible to introduce a material, for example a suitable plastic, which only cures, and therefore does not form a connection to the connection elements 8 or the core 2 and the upper web 3, into the receiving holes 10, 10'. The material adapted to the receiving hole 10, 10' and the connection element 8 in the finished ski 1 consequently retains the anchoring element 8 concerned positively in the ski 1.

Fig. 2 shows a further embodiment of a ski 1 with a structure which corresponds essentially to fig. 1, with a core 2, a running surface 4, edges 5, a lower web 6 and an upper shell 3. The design and arrangement of the guide elements 7, the anchoring elements 8 and their accommodation in holes 11' correspond to the variant shown in fig. 1. A prepreg layer 14 provided with openings for passing the connecting elements 8 through is introduced between the core 2 and the upper shell 3 or the optionally present intermediate ply at least in the region of the holes 11'. The layer 14 consists in a known manner of matting, made of glass fibers in particular, impregnated with resin. The production of the ski 1 takes place similarly to that according to the first illustrative embodiment with the difference that no connecting material is introduced into the holes 10'. When the ski 1 is pressed together, the liquefying resin of the prepreg layer 14 penetrates the holes 10', solidifies there and integrates the anchoring elements 8.

The invention is not limited to the embodiments illustrated and described. The core 2 of a ski 1 embodied according to the invention can also be made from other materials, for example wood or light metal. The invention can also be applied to snowboards.

It may also be mentioned that, instead of guide elements 7 with a rail-like profile, other interface elements can also be provided between ski and binding.